



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/551,408	02/24/2006	Yoshihiro Ito	0760-0350PUS1	4487
2292 7590 10/12/2011 BIRCH STEWART KOLASCH & BIRCH PO BOX 747 FALLS CHURCH, VA 22040-0747				
EXAMINER				
BASS, DIRK R				
ART UNIT		PAPER NUMBER		
1777				
NOTIFICATION DATE		DELIVERY MODE		
10/12/2011		ELECTRONIC		

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

mailroom@bskb.com

# Office Action Summary

**Application No.**

10/551,408

**Applicant(s)**

ITO ET AL.

**Examiner**

DIRK BASS

**Art Unit**

1777

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on November 30, 2010.
- 2a) ☒ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 12, 23, 24, 26, 36 and 37 is/are pending in the application.
- 4a) Of the above claim(s) 13, 14 and 28-35 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 12, 23, 24, 26, 36 and 37 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-946)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB-08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

### **DETAILED ACTION**

Applicant's request for continued examination filed September 22, 2011 is acknowledged. Claims 23 and 26 are amended. Claims 23-24, 26, and 36-37 are pending and further considered on the merits.

#### ***Response to Amendment***

In light of applicant's amendment, the examiner modifies the grounds of rejection set forth in the office action dated February 8, 2011.

#### ***Claim Rejections - 35 USC § 103***

1. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.
2. **Claims 23-24, 26, and 36-37** are rejected under 35 U.S.C. 103(a) as being unpatentable over Chappa et al., USPA 2001/0014448 (Chappa) in view of Chabreck et al., US 6204306 (Chabreck), Tanaka et al., US 6706260 (Tanaka), and Hubbard et al., USPA 2005/0042612 (Hubbard).
3. Regarding claims 23-24 and 26, Chappa discloses a method for fixing nucleic acids on a substrate (abstract) comprising coating a substrate with a solution containing a water soluble photoreactive polymer such as photoreactive acrylamide (¶ 0032-0034) having at least two photoreactive groups (¶ 0038), and selectively irradiating said solution with light (¶ 0016, Examples 6 and 25).
4. Chappa does not explicitly disclose that the polymer is a copolymer of photoreactive acrylamide and polyethylene glycol mono-methacrylate. However, using polyethylene glycol mono-methacrylate in copolymer solutions for coating biological

substances to substrates is well known in the art as evidenced by Chabreck and Hubbard.

5. Chabreck discloses photoreactive compositions for functionalizing substrate surfaces (abstract, C22/L9-23), said compositions comprising polyethylene glycol derivatives containing methacrylate (C22/L6-8). Tanaka discloses coating materials comprising a photoreactive copolymer backbone composed of polyethylene glycol monomethacrylate photoreactive acrylamide (C5/L51-63). Hubbard discloses a graft polymer composition for binding biological species to the polymer matrix (abstract) wherein said graft polymer comprises acrylamide and polyethylene glycol methacrylate (§ 0133, Examples 1-2 and 5).

6. At the time of invention, it would have been obvious to one having ordinary skill in the art to modify the method of Chappa to include a copolymer including polyethylene glycol methacrylate as taught by Chabreck, Tanaka, and Hubbard, since it has been shown that copolymers comprising polyethylene glycol methacrylate are effective in covalently binding biological substances to substrates (Hubbard, § 0022-0023) as well as providing advantageous properties such as biocompatibility and hydrophilicity to the coating (Tanaka, C1/L8-13).

7. Furthermore, it would have been obvious to one having ordinary skill in the art to modify the method of Chappa to include a copolymer including polyethylene glycol methacrylate, since it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice (MPEP 2144.07).

8. Regarding claims 36 and 37, Chappa (in view of Chabrecek and Hubbard) discloses that the photoreactive groups bound to the photoreactive acrylamide are phenyl azides (¶ 0032-0034, 0038).

***Response to Arguments***

9. Applicant's arguments with respect to the claims have been considered but are moot in view of the new ground(s) of rejection.

***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to DIRK BASS whose telephone number is (571)270-7370. The examiner can normally be reached on Mon - Fri (9am-4pm).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vickie Kim can be reached on (571) 272-0579. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Application/Control Number: 10/551,408  
Art Unit: 1777

Page 5

/KRISHNAN S MENON/  
Primary Examiner, Art Unit 1777

/DRB/  
Dirk R. Bass